

REMARKS

When the present Office Action was mailed (October 25, 2004), claims 74-81 and 124-134 were pending, with claims 80 and 81 withdrawn pursuant to a restriction requirement. Claims 74-81 have been amended. More specifically, claim 76 has been rewritten in independent form to include all of the features of the corresponding base claim and any intervening claims. Accordingly, this claim has not been narrowed by this amendment and any subsequent rejection of this claim on new grounds should not be made final. Claims 74 and 77-81 have been amended solely to change the dependencies of these claims. Claim 73 has been cancelled without commenting on or conceding the merits of the outstanding rejection. As such, this claim has been cancelled without prejudice to pursuing this claim in a continuation, divisional, reissue, or other application. Accordingly, claims 74-81 and 124-134 are currently pending, with claims 80 and 81 withdrawn.

The undersigned attorney traverses the Examiner's assertion that claims 124-134 are drawn to an "invention non-elected without traverse." (Office Action, p. 2.) The undersigned respectfully submits that claims 124-134 are directed to the elected species (Figure 11). Furthermore, claim 76 appears to be generic to claim 124. Accordingly, claims 124-134 should be examined.

In the Office Action mailed October 25, 2004, claims 73-79 were rejected and portions of the application were objected to. More specifically, the status of the application in light of this Office Action is as follows:

- (A) The title of the application was objected to;
- (B) The drawings were objected to under 37 C.F.R. 1.83(a);
- (C) Claim 76 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention; and
- (D) Claims 73-79 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,407,459 to Kwon et al. ("Kwon").

As a preliminary matter, the present Office Action incorrectly indicated that claims 73-79 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kwon. However, during a January 21, 2005 telephone conference between the Examiner and the undersigned attorney, the Examiner noted that the rejection of claims 73-79 over Kwon should be a Section 103 rejection rather than a Section 102(b) rejection. Accordingly, the arguments presented below treat this rejection as a Section 103 rejection.

A. Response to the Title Objection

The title of the application was objected to as failing to be descriptive. The title of the application has been amended in this response. Therefore, the objection to the title should be withdrawn.

B. Objection to the Drawings

The drawings were objected to under 37 C.F.R. 1.83(a) for allegedly failing to show every feature of the invention specified in the claims. More specifically, the Office Action asserts that claim 76, which recites that "none of the elongated members of the connection structure are connected to any bond sites of the microelectronic substrate," is not supported by the figures. Figure 11 illustrates (and paragraphs [0056] and [0057] of the originally filed specification describe) an inactive connection structure 1150 that includes a second bond site 1151. Elongated members 1153a and 1153b extend outwardly from the second bond site 1151 without being electrically connected to a microelectronic substrate 1040. Accordingly, the objection to the drawings under Rule 1.83(a) should be withdrawn.

C. Response to the Section 112 Rejection of Claim 76

Claim 76 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention. More particularly, the Office Action asserts that "it is unclear and confusing [as] to what is meant by "wherein none of the elongated members of the connection structure are connected to any bond sites of the microelectronic substrate." (Office Action, p. 3.) As discussed above, the figures and

the originally filed specification adequately support the claimed features. Accordingly, the Section 112 rejection of claim 76 should be withdrawn.

D. Response to the Section 103 Rejection of Claims 73-79

Claims 73-79 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kwon. As discussed above, this rejection should be a Section 103 rejection, rather than the Section 102(b) rejection listed in the Office Action. For the reasons explained below, however, the Section 103 rejection of these claims is not proper because Kwon fails to teach or suggest all of the claimed features. Claim 73 has been cancelled and, therefore, the rejection of this claim is now moot.

1. Independent Claim 76 is Directed to a Microelectronic Assembly Including, *Inter Alia*, a Microelectronic Substrate Having a First Bond Site and a Connection Structure Disposed on the Substrate, the Connection Structure Including at Least Two Elongated Members Connected to a Second Bond Site on the Connection Structure, but Not Connected to Any Bond Sites of the Substrate

Independent claim 76 is directed to a microelectronic assembly including a microelectronic substrate and a connection structure carried by the substrate. The substrate includes a first surface, a second surface facing opposite from the first surface, and a first bond site positioned at least proximate to the second surface. The connection structure is disposed on the second surface of the microelectronic substrate and includes a second bond site configured to receive a flowable conductive material. The connection structure further includes at least two elongated members connected to and extending outwardly from the second bond site. None of the elongated members of the connection structure are connected to any bond sites on the substrate.

2. Kwon Discloses Chip Scale Packages and Methods for Manufacturing Chip Scale Packages

Kwon is directed to chip scale packages and methods for manufacturing chip scale packages. Figure 14 of Kwon discloses a redistribution substrate 130 including a substrate base 110, a first dielectric layer 112 on the substrate base 110, and a plurality of terminal pads 116. The redistribution substrate 130 further includes a redistributed metal pattern 122 over the first dielectric layer 112 and in electrical contact with the

terminal pads 116. A second dielectric layer 124 is deposited over the redistributed metal pattern 122 and includes a plurality of openings 126. A plurality of interconnection bumps 128 are formed in the openings 126 and electrically coupled to the redistributed metal pattern 122. Referring to Figure 16, Kwon discloses that the interconnection bumps 128 on the redistribution substrate 130 are electrically coupled to corresponding chip pads 104 on a wafer 100 to form a chip scale package.

3. Claim 76 is Patentable over Kwon Because this Reference Fails to Teach or Suggest Several Claimed Features

Claim 76 is patentable over Kwon because this references fails to teach or suggest that "none of the elongated members of the connection structure are connected to any bond sites of the microelectronic substrate." For example, assume for sake of argument that the redistribution substrate 130, redistributed metal pattern 122, and terminal pad 116 of Kwon correspond, at least in part, to the microelectronic substrate, connection structure having elongated members, and bond site, respectively, of claim 76. Kwon's redistributed metal pattern 122 is electrically coupled to both the terminal pad 116 and the interconnection bumps 128. Further, each of the interconnection bumps are in turn electrically coupled to corresponding chip pads 104 on the wafer 100. Nowhere does Kwon teach that any of the "elongated members" of the "connection structure" are not connected to any bond sites of the substrate.

Moreover, one of ordinary skill in the art would not be motivated to modify Kwon's device to include the features of claim 76. For example, the redistributed metal pattern 122 of Kwon is used to electrically couple the terminal pad 116 to the chip pads 104 of the wafer 100. There is no motivation to modify Kwon's device in such a manner that any of the "elongated members" of the redistributed metal pattern 122 are not connected to any bond sites of the wafer 100 and/or the terminal pad 116 of the redistribution substrate 130. Such a modification would destroy the functionality of the chip scale package of Kwon because the terminal pads 116 would not be able to transmit signals to the corresponding chip pads 104 on the wafer 100. Accordingly, it would not be obvious to modify Kwon's device to include the elements of claim 76. Therefore, the Section 103 rejection of claim 76 over Kwon should be withdrawn.

Claims 74, 75, and 77-79 depend from base claim 76. Therefore, the Section 103 rejection of these claims should be withdrawn for the reasons discussed above, and for the additional features of these dependent claims.

Independent claim 124 includes several features generally similar to those of claim 76 (e.g., elongated members connected to and extending outwardly from a bond site, but not electrically connected to any of the bond pads on a microelectronic substrate.) Accordingly, for at least the reasons discussed above claim 124 is allowable over the applied reference.

Claims 125-134 depend from base claim 124. Therefore, claims 125-134 are allowable over the applied reference for the reasons discussed above, and for the additional features of these dependent claims.

E. Rejoinder of Withdrawn Claims 80 and 81

The undersigned attorney respectfully requests that the Examiner rejoin and allow claims 80 and 81. Claims 80 and 81 depend from generic independent claim 76. As discussed above, generic independent claim 76 is now allowable. Therefore, withdrawn claims 80 and 81 are now allowable.

Conclusion

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and are patentable over the applied art. The applicant respectfully requests reconsideration of the application and a mailing of a Notice of Allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-3982.

Respectfully submitted,

Perkins Coie LLP

Date: 1/24/05



Aaron J. Poledna
Registration No. 54,675

Correspondence Address:

Customer No. 25096
Perkins Coie LLP
P.O. Box 1247
Seattle, Washington 98111-1247
(206) 359-8000